

# Hybrid High-Temperature Superconductor Current Leads for Space Applications, Phase I

Completed Technology Project (2009 - 2009)



## Project Introduction

The Tai-Yang Research Company (TYRC) of Tallahassee, Florida proposes to build hybrid high-temperature superconducting current leads for space applications, including compact adiabatic demagnetization refrigeration (ADR) systems for sensor cooling. The current leads will be configured to meet NASA mission requirements for a low heat leak in a package optimized for electrical currents up to 10 A. The novel, proprietary construction by TYRC consists of a tough, flexible cold end section and a high critical temperature warm end section.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Goddard Space Flight Center (GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Tai-Yang Research Corporation	Supporting Organization	Industry	Knoxville, Tennessee

### Primary U.S. Work Locations

Maryland	Tennessee
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## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Goddard Space Flight Center (GSFC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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## Project Management

### **Program Director:**

Jason L Kessler

### **Program Manager:**

Carlos Torrez

## Technology Areas

### **Primary:**

- TX14 Thermal Management Systems
  - └ TX14.1 Cryogenic Systems
    - └ TX14.1.3 Thermal Conditioning for Sensors, Instruments, and High Efficiency Electric Motors